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Mahoning River, Ohio, Environmental Dredging Project Feasibility Study

Economic and Environmental Analysis Conference

2004

Baltimore, MD

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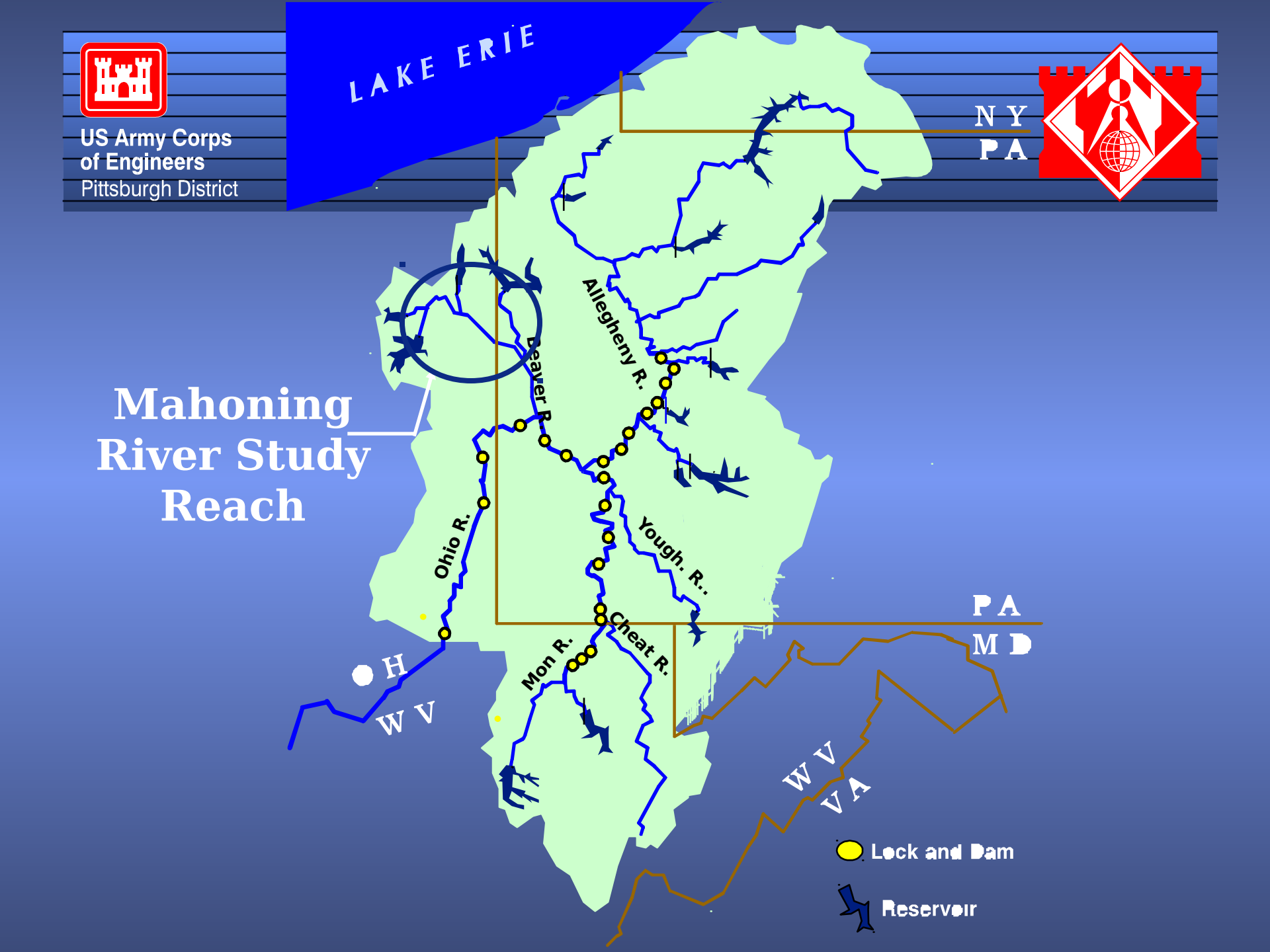
Mahoning River, Ohio, Environmental Dredging Project Feasibility Study

- Background
- Existing Conditions
- Environmental Quality Metrics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LAKE ERIE
NY
PA
Mahoning
River Study
Reach
Allegheny R.
Beaver R.
Ohio R.
Yough. R..
Mon R.
Cheat R.
PA
MD
WV
WV
VA
Lock and Dam
Reservoir

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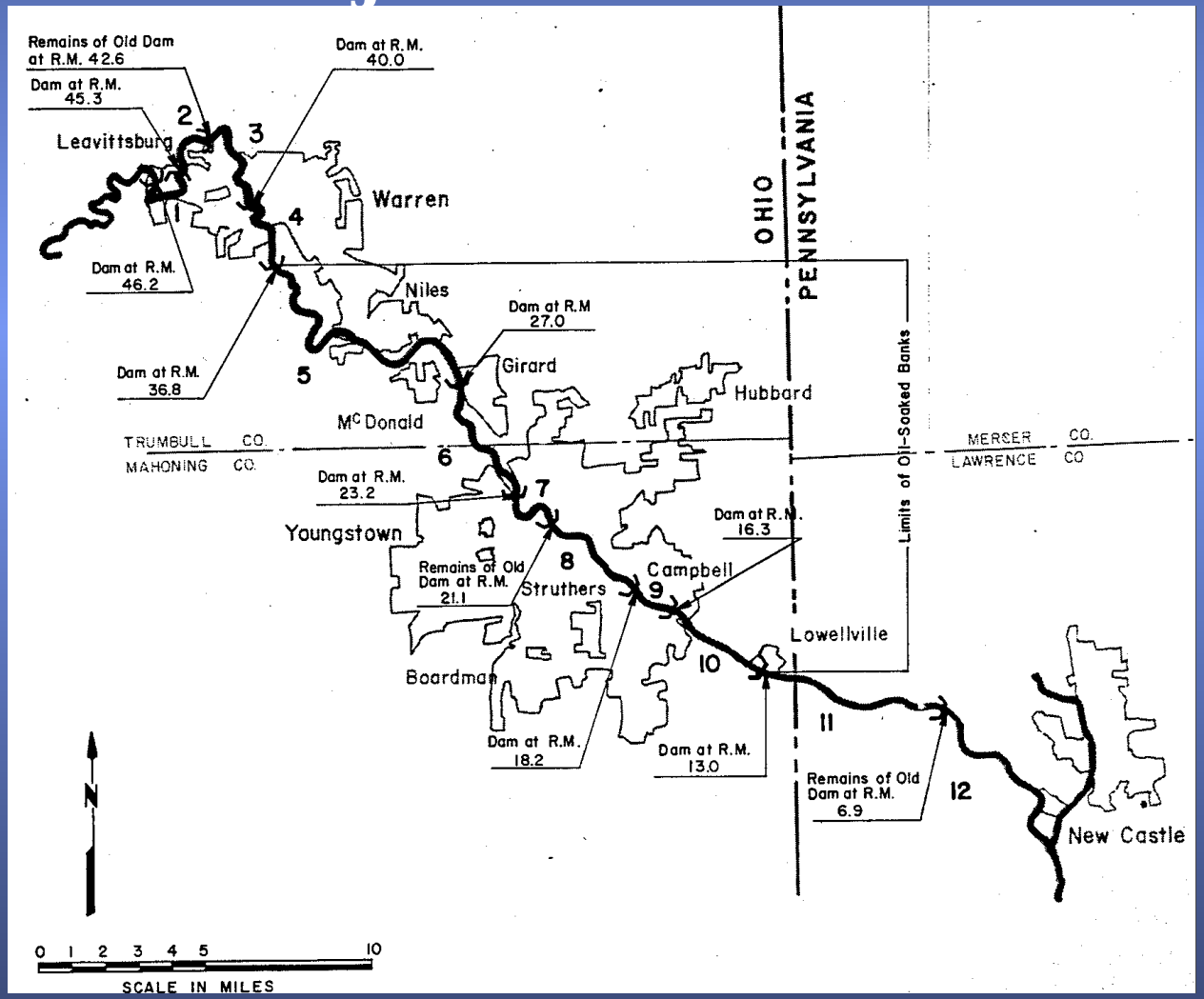
PROJECT STUDY AREA



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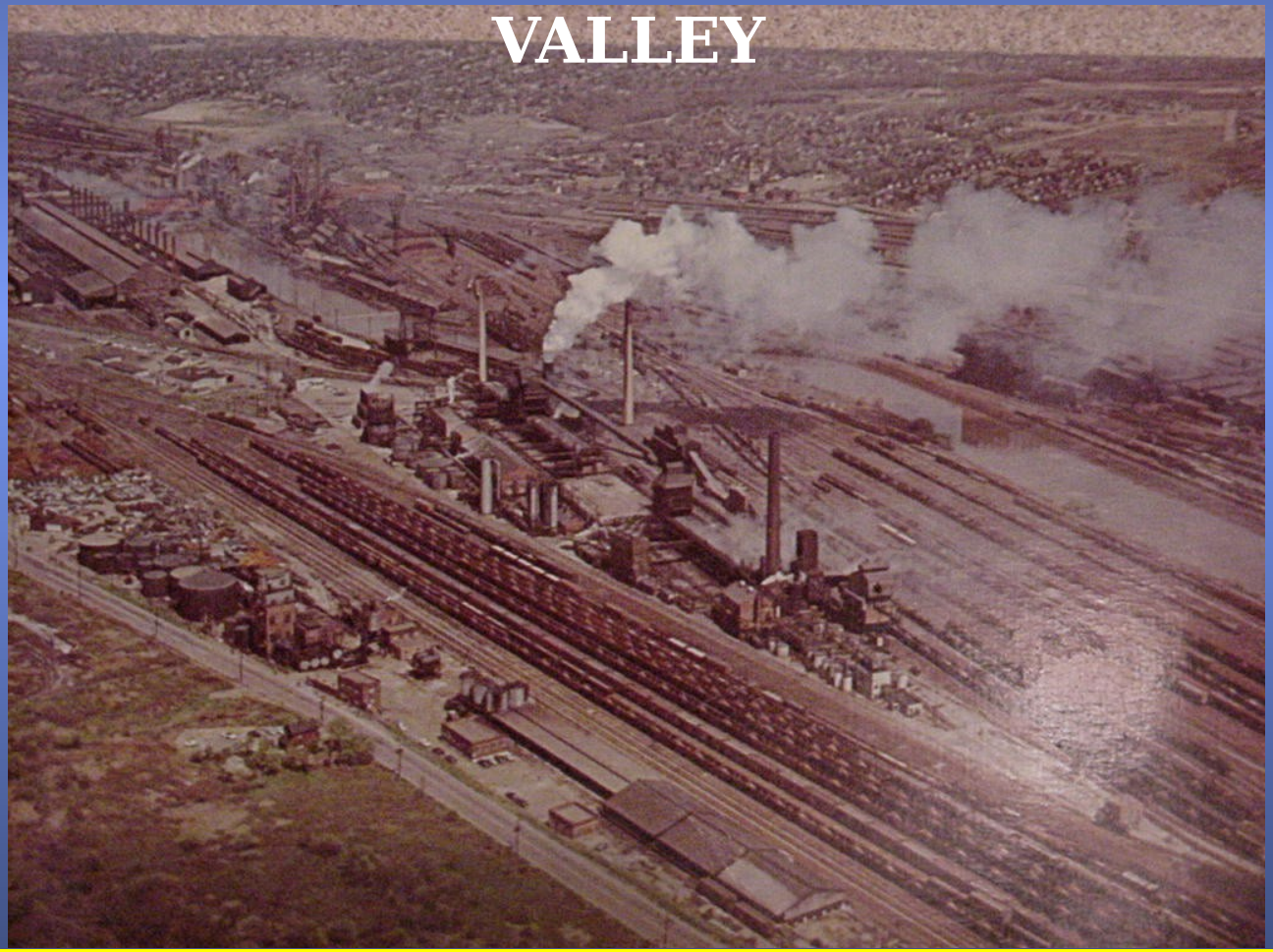
INDUSTRIAL LEGACY IN MAHONING RIVER VALLEY



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IN-RIVER AND RIVER BANK MATERIAL PETROLEUM BASED CONTAMINATION

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DEFORMED FISH CAUGHT IN PROJECT AREA

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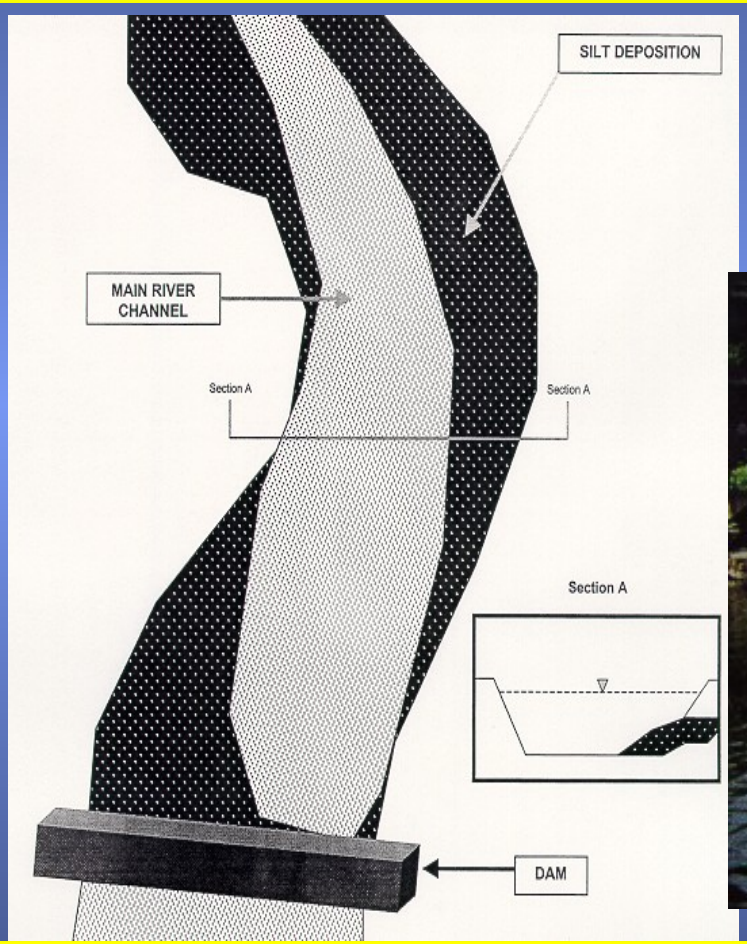

IN-RIVER DEPOSITION

LOW HEAD DAMS

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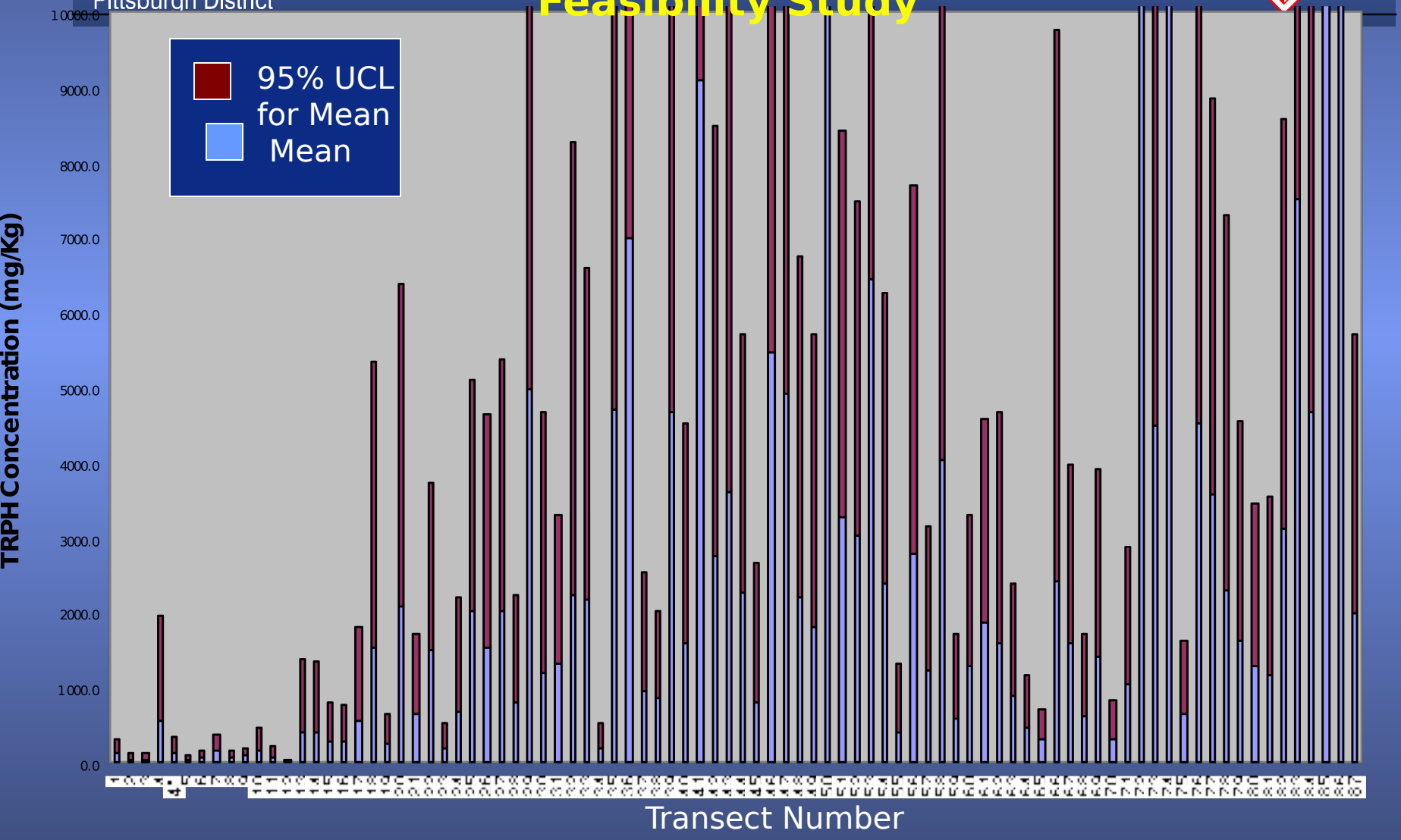

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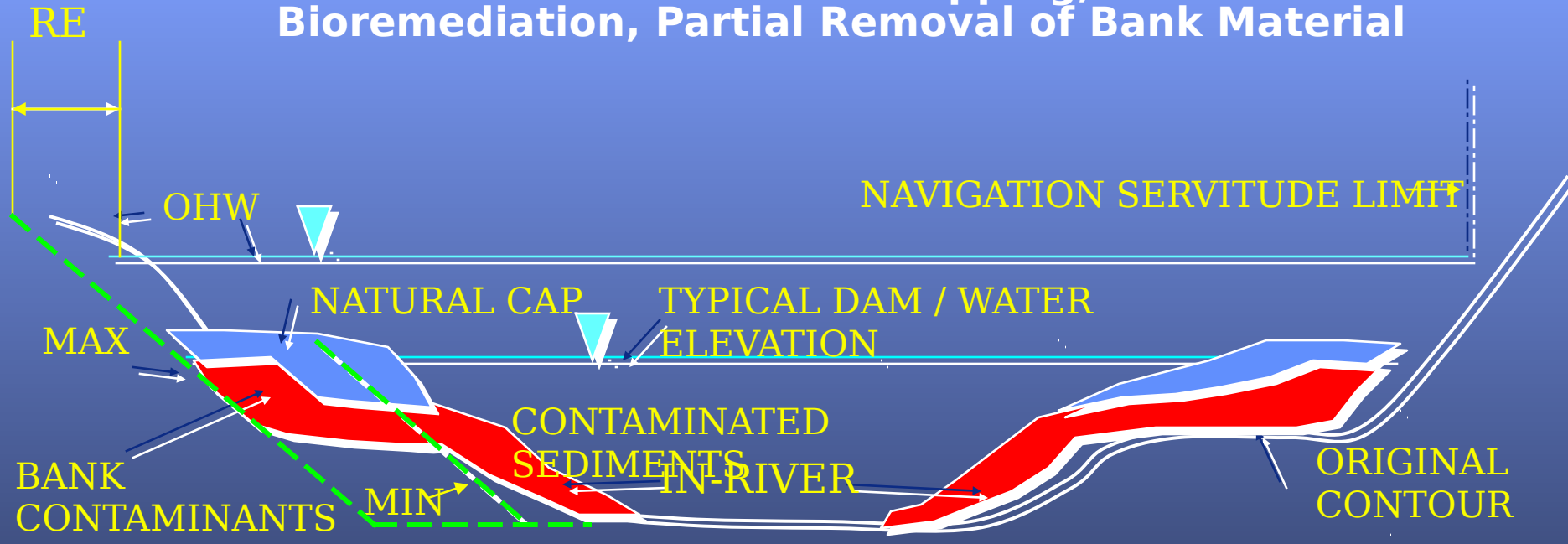
- **Formulation of Alternatives**
  - **No Action (With-Out Project) Alternative**
  - **Minimum Alternative – Remove In-River Sediments Only**
  - **Maximum Alternative – Remove In-River and Bank Sediments**
  - **Intermediate Alternative – Capping, Bioremediation, Partial Removal of Bank Material**



Environmental Quality Metrics

- OEPA Biological and Physical Indices

- Other Parameters

OEPA Biological Indices

- **Fish**
  - Index of Biotic Integrity (IBI), score ranges from 12 to 60
  - Modified Index of Well-Being (MIwb), score ranges from 0 to 12
- **Insects/Macro-invertebrates**
  - Invertebrate Community Index (ICI) score ranges from 0 to 60
- **Physical Habitat Index**
  - Qualitative Habitat Evaluation Index (QHEI), score ranges from 0 to 100

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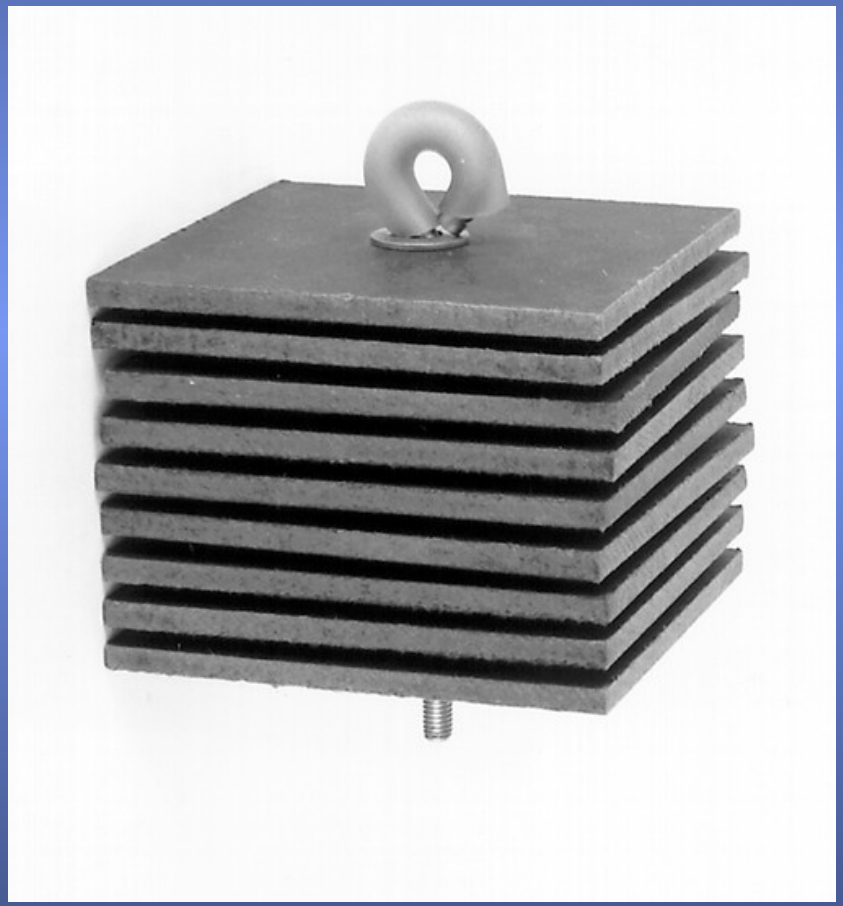

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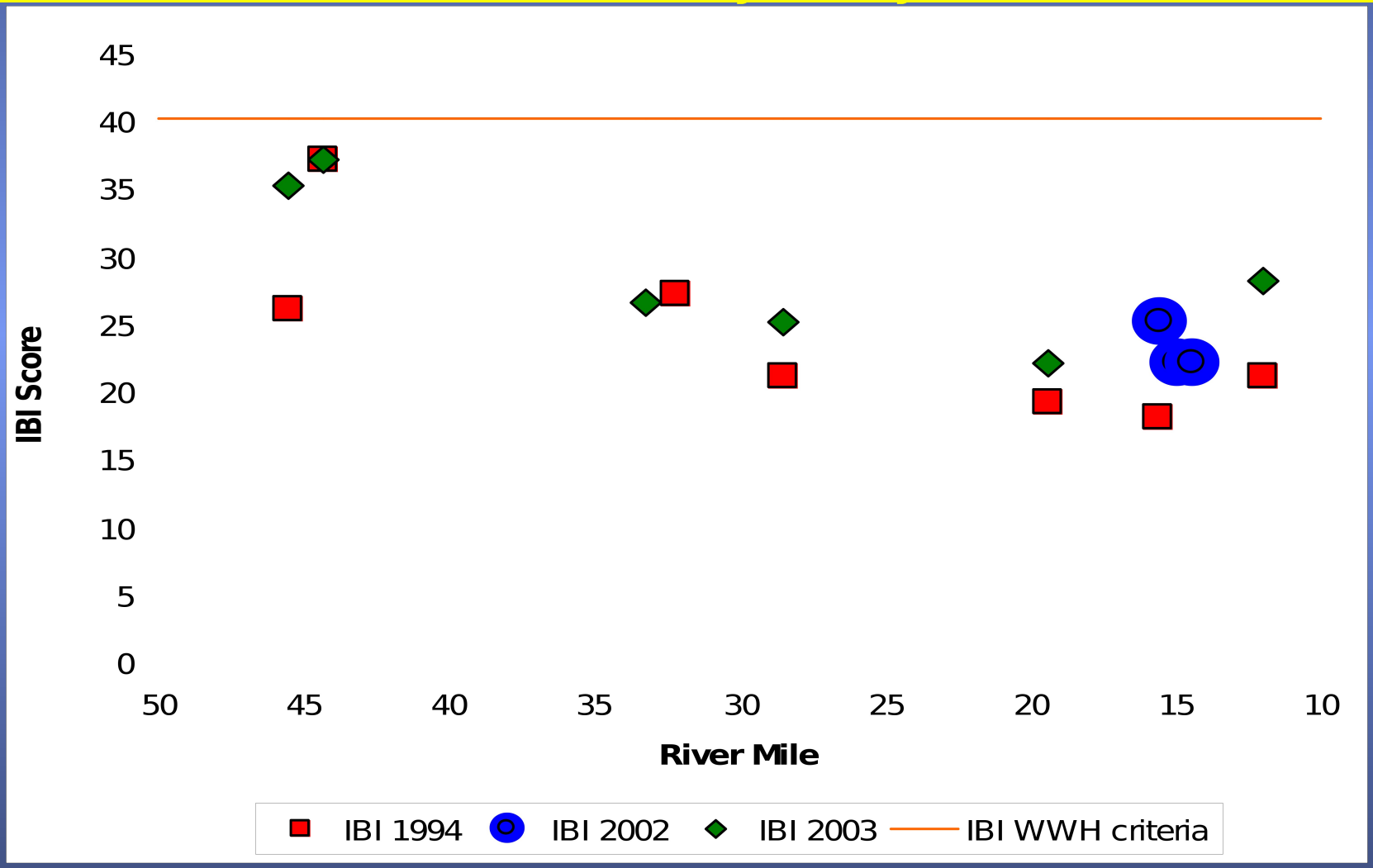

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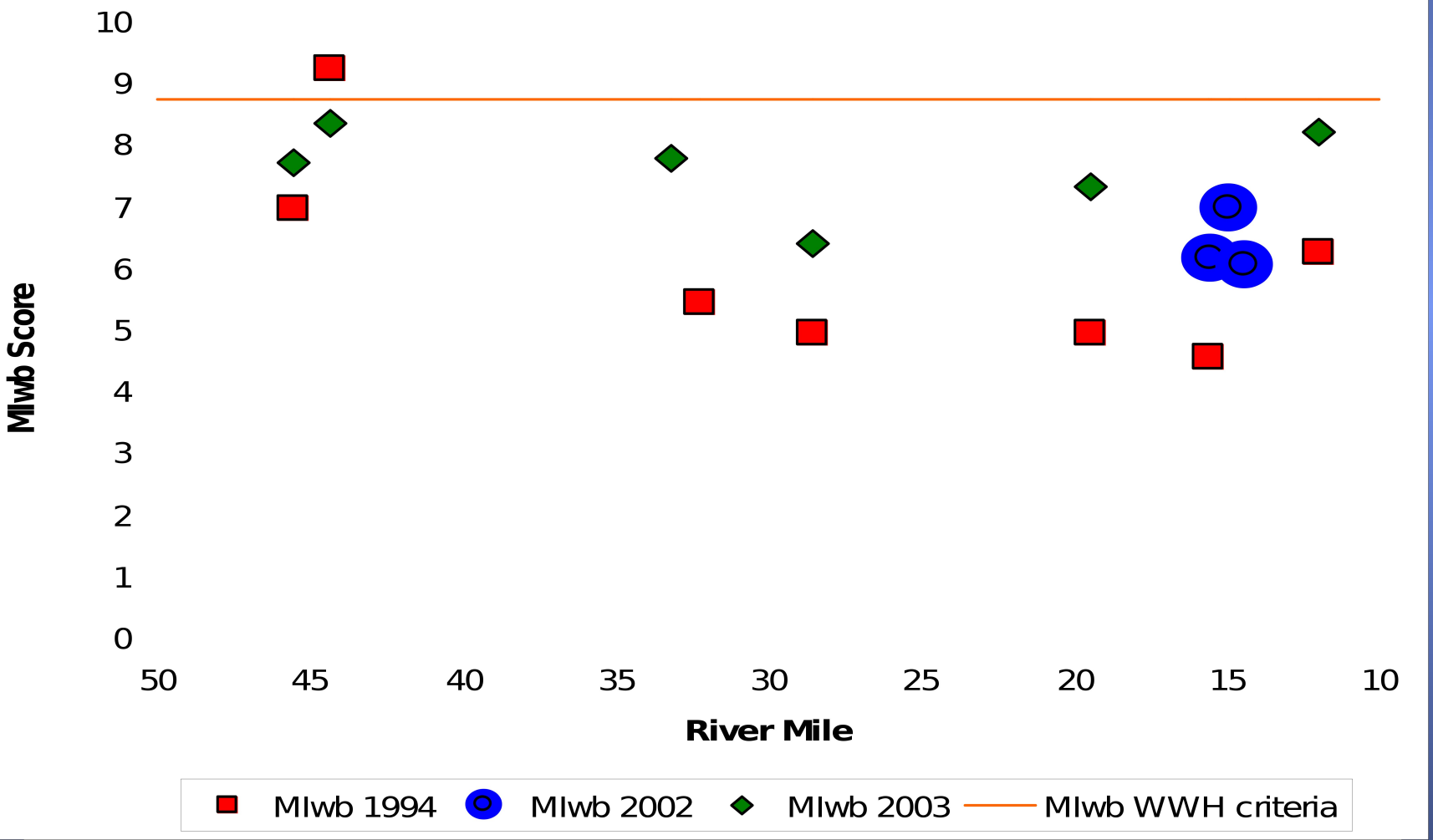

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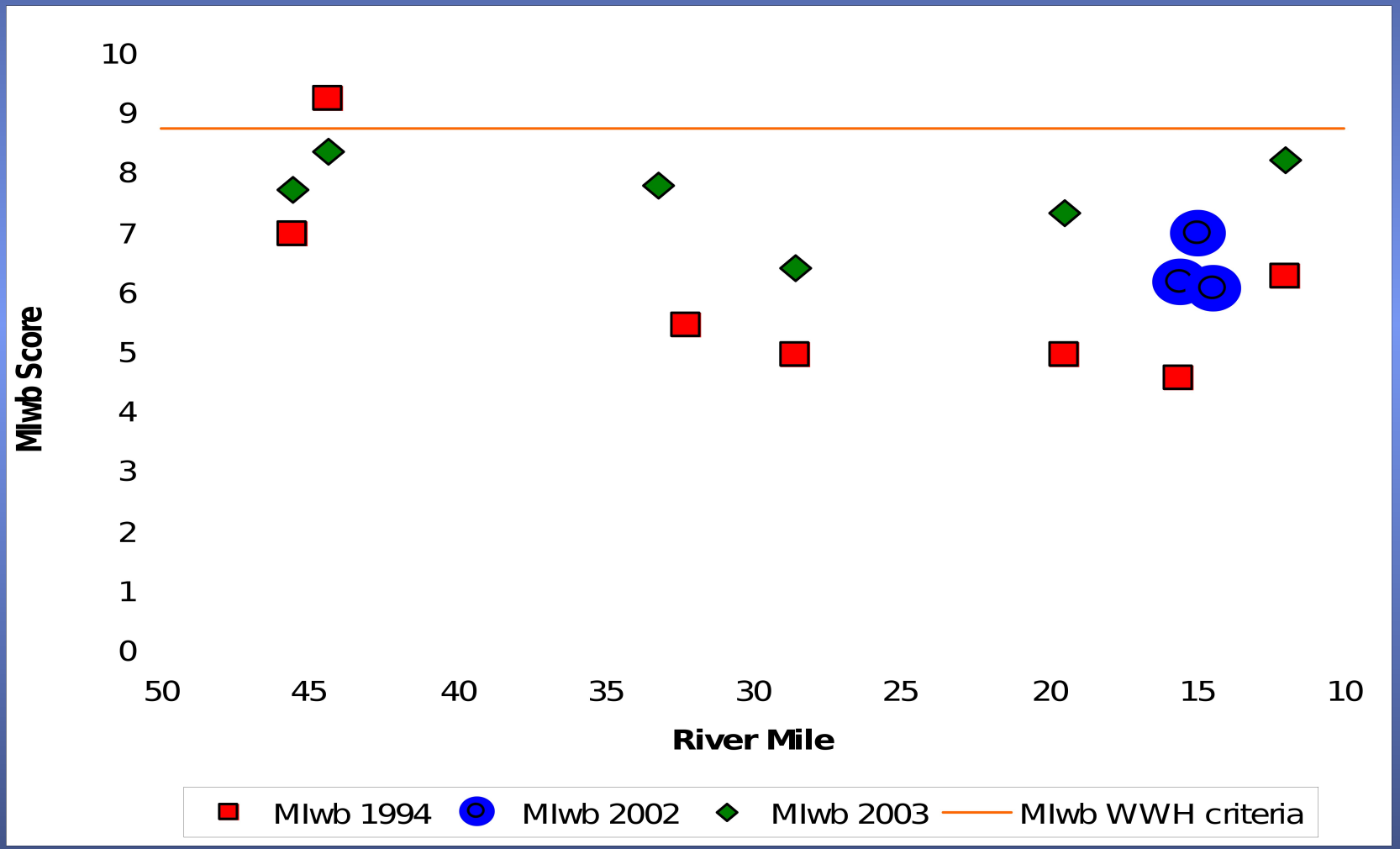

Environmental Quality Metrics

- % Top Carnivore
- EPT Taxa
- Sediment Quality (TRPH)
  - Under construction

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TABLE 1. PROPOSED SCORING SYSTEM FOR EQM

	Score						
Metric	0 Very Poor	1 Poor	2 Fair	3 Marginally Good	4 Good	5 Very Good	6 Exceptional
MIWB	0.0-4.9	5.0-6.3	6.4-8.1	8.2-8.6	8.7-9.0	9.1-9.5	>9.5
ICI	0	2-12	14-28	30-32	34-40	42-44	46-60
QHEI	<45		45-60		60-75		>75
% Top Carnivore	<3		3-7		8-12		>12
EPT taxa	0-4		5-8		9-12		>12

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	EQM Index Score						
River Mile	IBI	mIWB	ICI	QHEI	EPT taxa	% top carnivore	
Warren - Summit Street Reach							
40.1	1	2		2		6	
39.9			4		2		
39.9			1		0		
39.8	2	2	2	6	0	3	
39.6	2	3		6		6	
39			2		2		EQM for reach
Average for Reach	1.67	2.33	2.25	4.67	1.00	5.00	16.92
Girard Reach							
26.8	1	2		6		3	
25.9			-		0		
25.5	1	1	1	6	0	3	
23.6	1	0		0		3	EQM for reach
Average for Reach	1	1	1	4	0	3	10

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FISH FROM CLEAN PORTION OF MAHONING RIVER